

# RECOGNIZING ENERGY LEADERSHIP IN HOMEBUILDING BUILDERS CHALLENGE



## High Performance Builder Spotlight Martha Rose Construction, Inc. Seattle, Washington



### Long-Time Commitment to Green

Martha Rose became interested in conservation during the energy crisis of the 1970s. This led her to an interest in building green, even before the term became widely known. “I started out as a carpenter’s assistant,” she says, “After 10 years ‘pounding nails’ I was hired as a City of Seattle building inspector for 4 years, then spent 10 years as a freelance project manager. You learn so much when you do it hands on.”

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MARTHA ROSE  
MARTHA ROSE CONSTRUCTION

Eventually Martha Rose began her own building company, constructing custom spec houses using strict ‘green’ standards. When Martha Rose was approached to be a Building America Partner, she felt it was a no-brainer to join the program. “My goal wasn’t to be a trailblazer,” she says, “It was simply to build more environmentally-friendly homes.”

### Energy Saving Innovations

Martha Rose Construction maintains high standards of energy efficiency and environmental sensitivity and every home qualifies for the Built Green<sup>®</sup> and ENERGY STAR<sup>®</sup> programs. Wall insulation is always increased to a minimum

of R26 by using 2x6’s with plywood and foam. Attic insulation is as high as R60 and beneath the concrete slab is 2” of foam. All batt insulation is non-formaldehyde and spray foam is used to seal open areas around wires and pipes. Special attention is given to moisture control at all penetrations, beneath slabs, and on the roof—particularly important details in rainy Seattle. And, up to 80% of the job site waste is recycled.

Martha Rose points out that the Washington state building code is particularly stringent, so that she was already building a very efficient home. Her drive to achieve more comes from the *Passiv Haus*, an approach that results in a structure that requires almost no space heating. The first *Passiv Haus* was built in Germany in 1990, and more than 6,000 have been built in Europe. When asked, Martha Rose laughs, and admits that the German *Passiv Haus* is a sort of private benchmark. Building the Homestead homes, including detached carriage houses, was a challenge she was eager to meet. Each house is equipped with a 3kW photovoltaic system and a solar water heater.

### Radiator Heat

Houses at the Homestead site are outfitted with modern European-style radiators. A low-temperature boiler heats water and then pumps it to the radiator. The warm water heats the radiator, which then warms the room. Water recycles continuously and efficiently through the boiler. These modern radiators are small, quiet, wall-mounted and quick to warm-up. Each radiator has an individual thermostat that the homeowner may set. Maximum

### BUILDER PROFILE

Martha Rose Construction, Inc.  
[www.martharoseconstruction.com](http://www.martharoseconstruction.com)

Founded: 2002 (Builder since 1987)

Employees: 5

Development: Homestead

Size: 3 homes; plus one 1904 farm house renovation

Square Footage: Main house of 2400 sq. ft. (4 bdrm, bonus room, 3 bath) plus a detached carriage house above the garage of 600 sq. ft., with full kitchen and bath.

Price Range: \$899,000 (includes main house and carriage house).

Building America’s Marine Best Practices has more information on building in this climate.



U.S. Department of Energy  
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Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable



A Washington State University researcher and the construction manager install a monitor on heat recovery ventilation equipment.

efficiency is achieved because a room is only heated according to its' specific demand.

This is particularly beneficial in bedrooms, ensuring healthy, comfortable sleep.

## The Lungs of the House

Each Homestead house was outfitted with a Fantech Heat Recovery Ventilator (HRV) for improved indoor air quality. With a tight seal keeping the cold out, pet dander, dust, allergens and other pollutants can be trapped inside, creating an uncomfortable environment. The Fantech system runs constantly at a low speed acting as the lungs of the home. Fresh air is constantly being brought in and stale air expelled, with much of the outgoing heat recovered.

## The Bottom Line

Martha notes that she sometimes gets pushback from her employees about building to such high standards. They want to make sure that cost doesn't exceed expenses and "Can we really afford this?" is a question sometimes heard on the job site. Martha's response has never wavered: "If I can't build this way, I don't want to build. Let's find a way we can do this." And they always do.

### KEY FEATURES

6-year home warranty

Fantech Heat Recovery Ventilator

Pre-primed, kiln-dried cedar siding

Custom bent detailed flashing around windows and doors

Detailed moisture control under slab

Non-formaldehyde blown-in-battling "BIBS"

2-inch foam under concrete slab

Low-e windows, U 0.25, triple glaze

Ducts in conditioned space

3kW photovoltaic system on each home

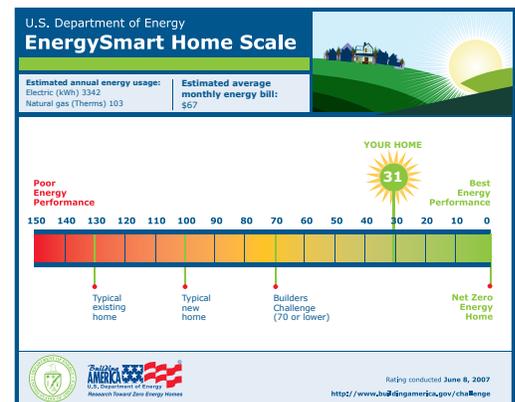
Solar hot water: 16 evacuated tubes on each home

## U.S. Department of Energy Builders Challenge

DOE has posed a challenge to the homebuilding industry—to build **220,000 high performance homes by 2012**. Homes that qualify for this Builders Challenge must meet a 70 or better on the EnergySmart Home Scale (E-Scale). The E-scale allows homebuyers to understand—at a glance—how the energy performance of a particular home compares with others. Through the Builders Challenge, participating homebuilders will have an easy way to differentiate their best energy-performing homes from other products in the marketplace, and to make the benefits clear to buyers.

The figure to the right shows an E-Scale for Martha Rose Construction, Inc.. The E-scale is based on the well-established Home Energy Rating System (HERS) index, developed by the Residential Energy Services Network. To learn more about the index and HERS Raters visit [www.natresnet.org](http://www.natresnet.org).

To learn more about the Builders Challenge and find tools to help market your homes, visit [www.buildingamerica.gov/challenge](http://www.buildingamerica.gov/challenge).



## The Building America Program

Building America is a private/public partnership sponsored by DOE that conducts systems research to improve overall housing performance, increase housing durability and comfort, reduce energy use, and increase energy security for America's homeowners. Building America teams construct test houses and community-scale projects that incorporate systems innovations. The teams design houses from the ground up, considering the interaction between the site, building envelope, mechanical systems, and other factors, and recognizing that features of one component in the house can greatly affect others. More than 40,000 energy-efficient houses have been built by the seven teams to date.

For more information visit [www.buildingamerica.gov](http://www.buildingamerica.gov). The website contains expanded case studies, technical reports, and best practices descriptions.